

**ARIZONA GAME AND FISH DEPARTMENT
HABITAT PARTNERSHIP COMMITTEE
HABITAT ENHANCEMENT AND WILDLIFE MANAGEMENT PROPOSAL**

Game Branch / HPC Project Number:

14-527

PROJECT INFORMATION

Project Title: East McQuiggan Pasture – Bonita Grasslands Restoration Phase 5

Region and Game Management Unit: Region 5, GMU 32

Local Habitat Partnership Committee (LHPC):

- Safford HPC

Was the project presented to the LHPC?

YES[X] NO[]

Has this project been submitted in previous years? YES[] NO[X]

If Yes, was it funded? YES[] NO[] → **Funded HPC Project #(s):**

Project Type: Grassland Restoration involving grubbing of mesquite trees

Brief Project Summary:

This overall project (**Bonita Grasslands Restoration**) is in the fifth phase of a 20,000 acre, landscape scale grassland restoration project in the Bonita area within GMU 31 and 32. To date this project has involved funding and grants from the Natural Resources Conservation Service (NRCS), Arizona Department of Agriculture (ADA), US Fish and Wildlife Service (USFWS), Arizona Game and Fish Department (AGFD), Habitat Partnership Committee (HPC) and National Fish and Wildlife Foundation (NFWF). During the initial planning stages of this landscape project, it was foreseen to require up to 10-15 years to complete the entire 20,000 acres, depending upon available funding and cooperating landowners and lessees. To date approximately 12,000 acres have been treated.

This project (**East McQuiggan Pasture**) will reclaim 1600 acres of historic semi-desert grassland through the use of mechanical grubbing of live mesquite trees and the piling of those mesquite carcasses for later removal. The East McQuiggan Pasture consists of approximately 3040 acres of State Trust leased lands. Two previous grassland projects have occurred in this same pasture, 320 acres were treated in 2012 and 1100 acres treated in 2013 for a total of 1420 acres.

The removal or significant reduction in mesquite trees within the treated area will result in overall improved range conditions, improve water infiltration and reduce soil erosion. The improved range/habitat conditions are the biggest part of restoring the grassland ecosystem benefiting all grassland associated wildlife species.

Big Game Wildlife Species to Benefit: Pronghorn Antelope, Scaled Quail and Mule Deer

Implementation Schedule (Month/Day/Year):

Project Start Date:

November 2015

Project End Date:

July 2016

Environmental Compliance:

NEPA Completed: Yes[] No[] N/A[X]

Projected Completion Date: State Trust Lands

State Historic Preservation Office - Archaeological Clearance:

Yes[X] No[] N/A[]

Projected Completion Date: To be completed by AZ SLD with the exception of 160 acres will be contracted by AGFD.

Arizona Game and Fish Department EA Checklist: N/A[]

To be Completed by: John Bacorn

Projected Completion Date: _____

PROJECT FUNDING		
Special Big Game License Tag Funds Requested:	\$ 30,000.00	
Cost Share or Matching Funds:	\$ 30,000.00 (NFWF) \$ 176,000.00 (Scaled Quail Initiative)	
Total Project Costs:	\$236,000.00	
PARTICIPANT INFORMATION		
Applicant (please print): John Bacorn (AGFD)	Address: 555 N. Greasewood Road Tucson, AZ 85705	E-mail: jbacorn@azgfd.gov
Telephone: 520-591-1485		Date: August 25, 2014
AGFD Contact and Phone No. (If applicant is not AGFD personnel): John Bacorn (AGFD Region 5) 520-591-1485		
Project has been coordinated with: Jim Heffelfinger (AGFD Game Specialist), Cody Hatfield (ASLD), Chase Skarrer (NRCS) Jeff Homack (ASLD lessee).		

NEED STATEMENT – PROBLEM ANALYSIS:

Large blocks of land, historically semi-desert grasslands in the Sulphur Springs and San Bernardino Valleys of Southeastern AZ are declining in size and connectivity between them is being lost due to the heavy encroachment of mesquite and other shrub species. Approximately 36% of historic grasslands within the Apache Highlands ecoregion (SE AZ, SW NM, and Northern States of Sonora and Chihuahua Mexico) have been converted to varying degrees of shrublands (Gori, D.F., and C.A.F. Enquist. 2003).

Mesquite invasion in grasslands alters the entire grassland ecosystem; it alters the water infiltration, and changes the vegetation composition such as grasses, forbs, shrubs and subshrub (browse) species. This change in vegetation changes the wildlife species composition normally associated with grasslands as well. Grassland associated wildlife such as pronghorn antelope, scaled quail, desert box turtle, Botteri's Sparrow, Cassin's Sparrow, meadowlark and loggerhead shrike are being negatively impacted by this loss of habitat due to habitat degradation and fragmentation.

"The antelope were once very abundant throughout the entire Sulphur Springs Valley, but now inhabit the grassland north of Willcox, east of the Galiuro and Winchester Mountains and west of the Pinalenos. A portion of the population also ranges on Allen Flat to the southwest of the Winchester Mountains. Raymond Wildlife Area-Chavez Pass antelope were released here (22 in 1943, 6 in 1944, 40 in 1945)" from Region V Pronghorn Antelope Management Plan.

During the early to mid-1990's over 100 antelope were observed during AGFD aerial surveys within the Bonita area. Beginning around 2000 the number of animals observed began declining and during the 2004 and 2005 surveys, only 25 animals were observed. During this time period fawn to doe ratios declined. From 1999 to 2004, the average fawn to doe ratio was 5:100. In 2006, 2007 and 2008, AGFD contracted with Wildlife Services to fly aerial coyote control within the Bonita area, observation numbers increased to 49, 84 and 58 animals and fawn ratios were 35, 75 and 21 fawns per 100 does during the three years of aerial coyote control. The average number of pronghorn observed during the last 5 years has been 50.

The Western Quail Management Plan 2010, recommend assessing shrub encroachment, protecting and enhancing desert grasslands and reestablishing native bunchgrass habitats as habitat objectives for improving Scaled Quail habitats.

The removal or significant reduction in mesquites within the treated area and improved range management will result in overall improved range conditions, improving water infiltration and reducing soil erosion. This will go a long way toward restoring the grassland ecosystem benefiting Pronghorn antelope, Scaled quail and all grassland associated wildlife species. The associated ranch on which this project is proposed, has a CRMP (Coordinated Resource Management Plan) developed by the Natural Resource Conservation Service (NRCS), and brush removal was recommended in this plan to address natural resource concerns on the ranch.

PROJECT OBJECTIVES:

- 1) Main Objective is to improve/restore the desert grassland ecosystem.
- 2) Improve water infiltration, reduce soil erosion and increase the native grass and forb composition.
- 3) Improve range/habitat conditions for all grassland associated wildlife species, especially for Pronghorn antelope and Scaled quail.
- 4) Improve range conditions for the livestock operations.

PROJECT DESCRIPTION AND STRATEGIES:

- 1) Mechanically remove/reduce mesquite densities within project area by 85-95%.
- 2) Remove 90-95% of the mesquite carcasses by piling and later burning.
- 3) Defer grazing in project area for a minimum of 2 growing seasons to increase seed base of native grasses and forbs.
- 4) Implement CRM (Coordinated Resource Management) plans to improve overall range conditions.

Ideal pronghorn habitat would consist of open grasslands with a mixture of grasses, forbs and low shrubs averaging between 10 and 18 inches in height. Canopy cover and shrubs above 30 inches should be considerably less than 20% of total cover for the area. This project will remove 85-95% of the mesquite trees with the use of an excavator, leaving scattered larger trees for shade and cover for pronghorn, mule deer and livestock and scattered shrubs less than 30 inches for Scaled quail cover. The uprooted mesquite carcasses (90-95%) will be removed by piling in close proximity to their originally location and burned at a later date. The removal of the mesquite carcasses after grubbing is important in relation to Pronghorn antelope's "visibility" and their ability or willingness to utilize the treated area.

Ideal Scaled quail habitat would consist of grassland type habitat with scattered low shrubs, bunchgrasses and a variety of native grasses and forbs. Tree canopy of < 10%, grass canopy cover of > 26% and short (< 22 in) low shrub cover (K.D. Bristow and R.A. Okenfels). Scaled quail tend to avoid complete open grasslands without some shrub cover. Low shrub cover is important for hiding from predators and resting areas. To provide habitat conditions for scaled quail, 1-3 cover areas per acre will be provided by either low mesquite shrubs (<30 inches) or an uprooted mesquite carcass.

For additional improvement in range conditions and providing an increased grass and forb seed base, the treated area will be rested from cattle use during 2 consecutive growing seasons and NRCS CRM ranch plans will be followed.

The SLD lessee will apply for a State Land Department treatment application and will be responsible for hiring the contractor to conduct the treatment work.

Excavator Used in Removing Mesquite tree and roots from project areas.



Photo of ongoing treatment area with mesquite piles.

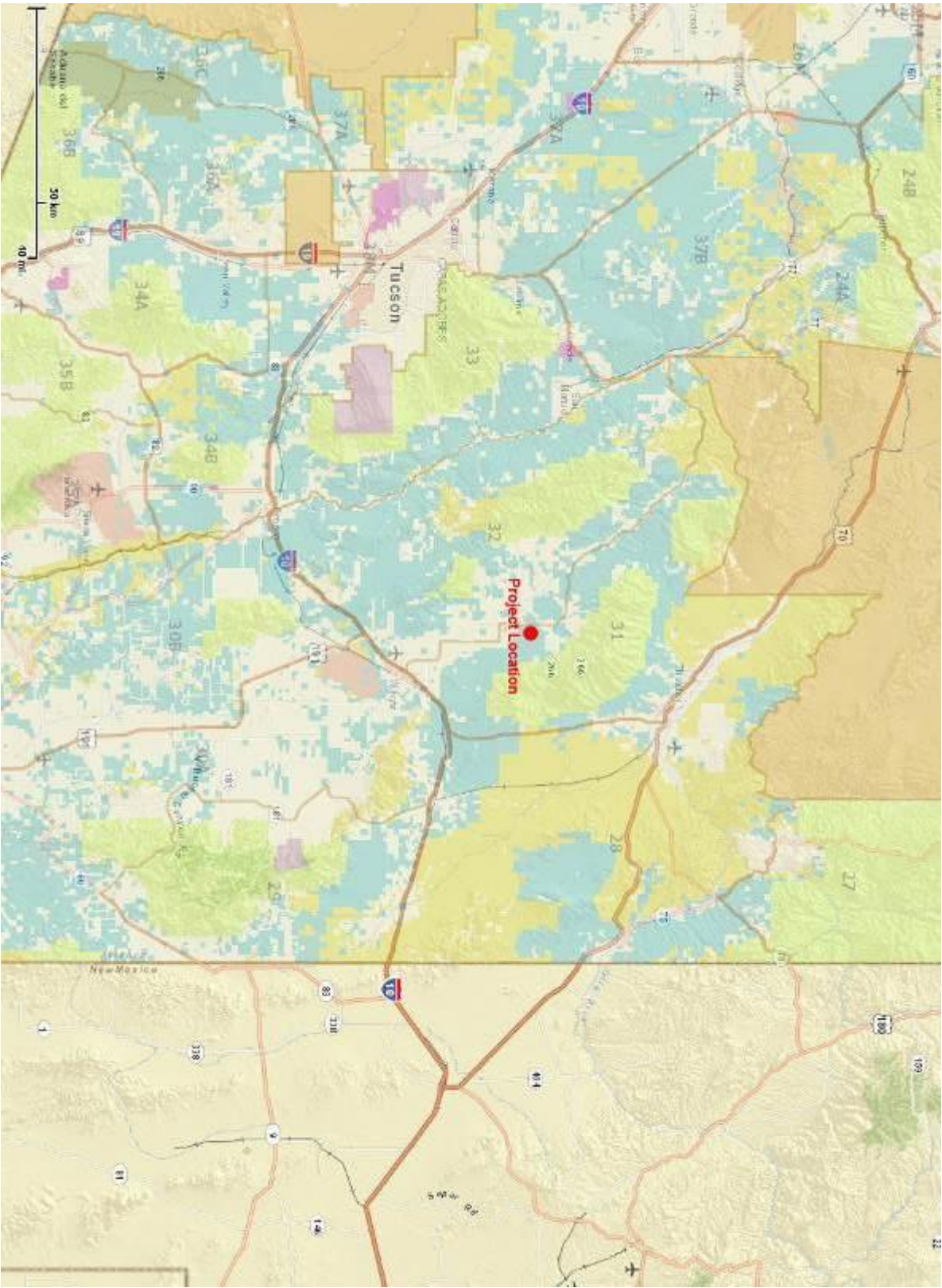


Photo of same treatment area 2 years later after burning of mesquite piles.



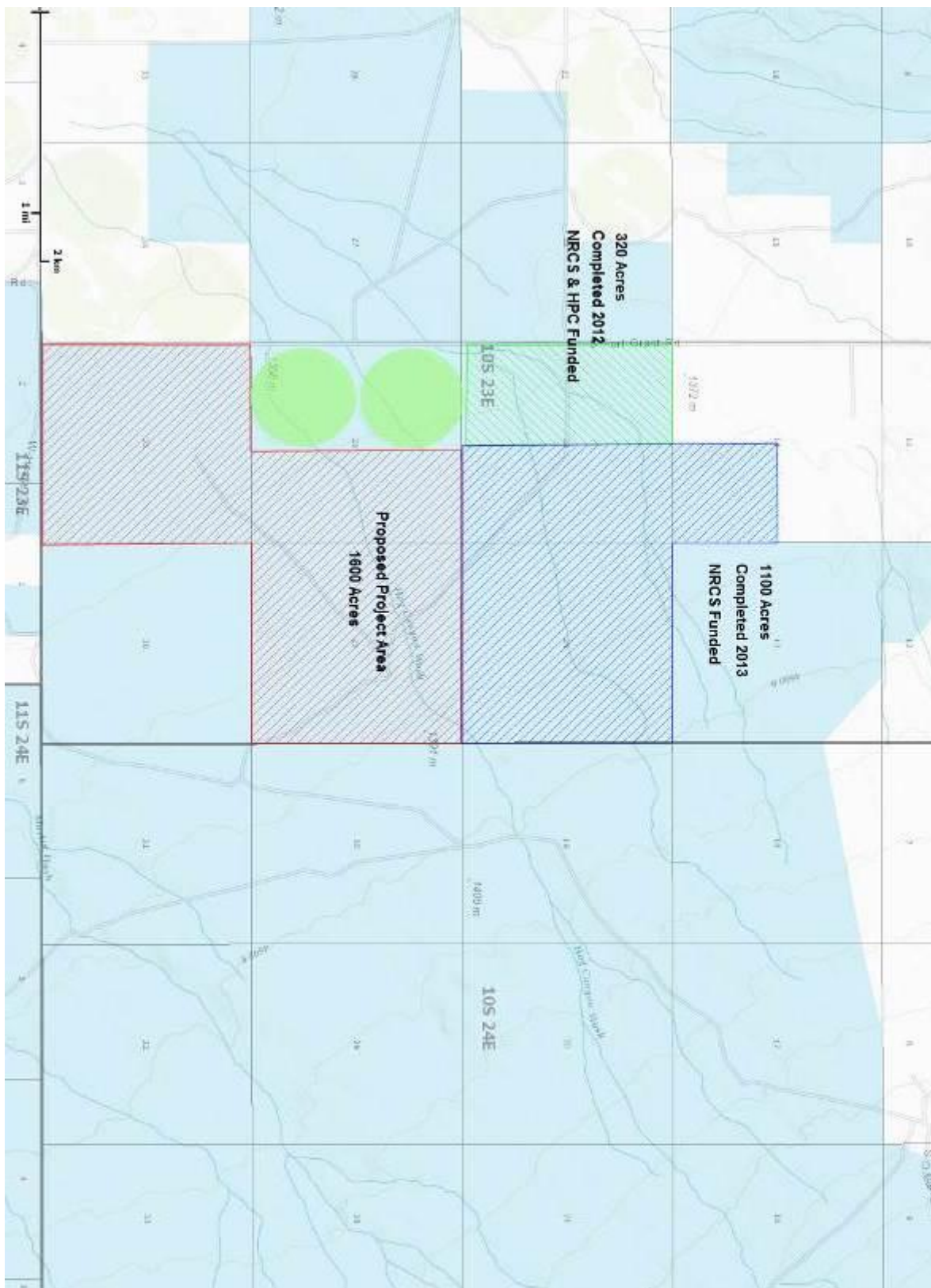
PROJECT LOCATION:

Region 5, Game Management Unit 31, located approximately 25 miles north of Willcox in Graham County.

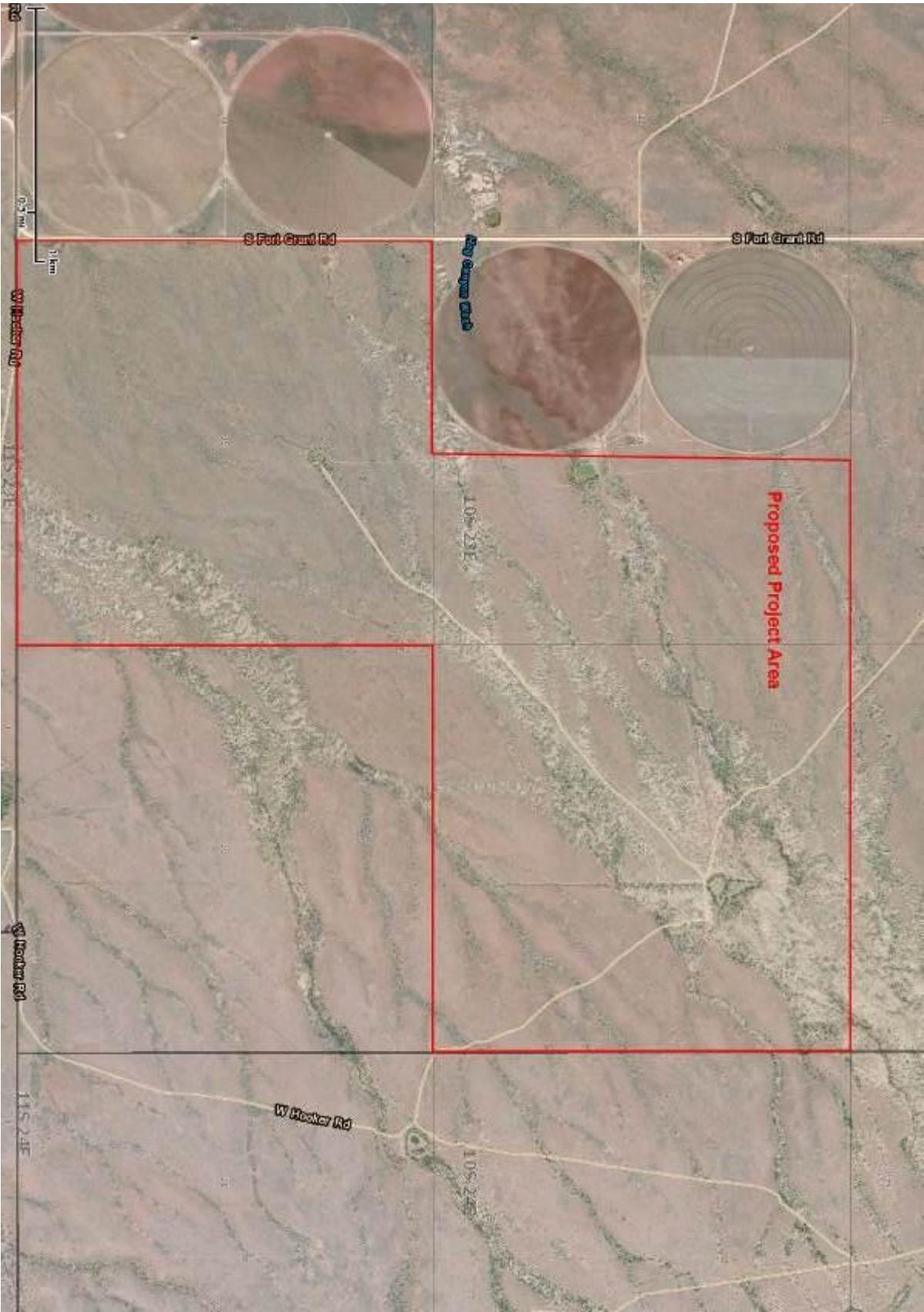


East McQuiggan Pasture

Proposed project area consists of 1600 acres of State Trust Lands, located in Townships 10South, 23East, sections 25, 26 and 35; on the east side of Fort Grant road, approximately 4 miles south of Bonita, AZ.



Proposed Project Area Imagery Photo



LAND OWNERSHIP AT THE PROJECT SITE(S): AZ State Trust Lands, public access is adequate.

HABITAT DESCRIPTION:

According to the NRCS Soil map website, the two dominant ecological sites are Sandy Loam and Clay Upland. Historically these ecological sites consisted of Giant Sacaton grasslands in the lower sandy loam areas and Tabosa grasslands in the upper clay uplands.

Currently the project area is remnant semi-desert grassland with a heavy to medium invasion of mesquite cover story and a reduced grass understory community and increasing soil erosion occurring within the heavier mesquite dominated areas. Elevation is between 4400-4500 feet.

Utilizing aerial imagery, the mesquite densities in the project area is estimated to have 362 acres (23%) heavy, 868 acres (54%) medium and 378 acres (23%) light. NRCS categorizes tree densities as heavy (>150 per acre), medium (75-150 per acre) and light (<75 per acre).

Photo of Current Habitat Conditions within Project Site.



Aerial Photo of Project Site (above the Ag Pivots).



ITEMIZED USE OF FUNDS:

The 2014 Natural Resource Conservation Service's (NRCS) Best Management Practices for brush removal of large trees, lists their incentive rates for mechanical removal in Heavy Density at \$320.00 per acre, Medium Density at \$255.00 per acre and light Density at \$156.00 per acre.

John Bacorn and lessee Jeff Homack met with Jeff's contractor, based upon the soil type, tree density and overall size of the project, the contractor agreed to perform the treatment at the cost of \$138.00 - \$140.00 per acre.

Cultural Resource Surveys will need to be completed prior to the onset of the treatment. It is assumed/planned that ASLD will the conduct cultural resource survey on 1440 acres of the project, but due to Federal requirements, a cultural resource survey will need to be completed on 160 acres of the project being funded by NFWF funds.

Practice	Rate/ac	Acreage	Total
Brush Removal and Brush Piling	\$140.00	1600	\$224,000.00
Cultural Resource Survey		160	\$12,000.00
			\$236,000.00

Special Big Game License Tag Funds

Requesting \$30,000.00

Cost Share or Matching Funds (for volunteer labor rates please refer to the worksheet below)

AZ Antelope Foundation's NFWF Funds \$30,000.00
AGFD Scaled Quail Initiative \$176,000.00
 \$206,000.00

Total Funds	
AGFD Scaled Quail Initiative	\$176,000.00
AZ Antelope Foundation NFWF Funds	\$30,000.00
Habitat Partnership (HPC)	\$30,000.00
	\$236,000.00

LIST COOPERATORS AND DESCRIBE POTENTIAL PARTICIPATION:

NRCS has written up the CRM Plan and responsible for the assisting with implementation of the CRM plan.

ASLD has been a cooperator through the entire process and will be responsible for cultural resource surveys. ASL lessee will contract out the treatment and responsible for burning the mesquite piles after the treatment has been completed.

WOULD IMPLEMENTATION OF THIS PROJECT ASSIST IN PROVIDING, MAINTAINING, OR FACILITATING RECREATIONAL ACCESS?

YES[] NO[] N/A[X]

PROJECT MONITORING PLAN:

The treatment is expected to require 4-6 months to complete, depending upon climate conditions.

Project completion and success will be monitored by AGFD, ASLD and State Land lessee.

PROJECT MAINTENANCE:

The project area will be monitored annually by the lessee and/or AGFD. It is anticipated that there will not be 100% mesquite mortality and there may be some re-sprouting of mesquite in subsequent years. This has been discussed between all parties involved. Maintenance may require application of herbicide of individual plants every few years to maintain the open grassland habitat type desired and may involve subsequent HPC proposals.

PROJECT COMPLETION REPORT TO BE FILED BY: John Bacorn (AGFD)

TREE CLEARING/REMOVAL PROJECTS (please use the worksheet below):

ARIZONA GAME AND FISH DEPARTMENT **TREE CLEARING/REMOVAL WORKSHEET**

PROJECT TITLE: East McQuiggan Pasture –Bonita Grasslands

- 1) **What is the estimated acreage of the project?** 1600 acres

- 2) **How are the trees going to be cleared? (agra axe, chain saw, grubbing, push, chaining):**
Mesquite trees will be mechanically “grubbed” with use of excavator by pulling out the mesquite and roots and the use of a front-end loader for piling carcasses.

- 3) **What is the estimated number of trees per acre?**
150 trees/shrubs per acre on 362 acres
75 trees/shrubs per acre on 868 acres
10-15 trees/shrubs per acre on 378 acres.

- 4) **Describe trees to be cleared (species, estimated diameter, single stem, multi-stem):**
Mesquite tree will be the selected target species. Various diameter and multi-stemmed trees will be removed, diameters will ranch from1 inch up to around 35 inches, most trees above 35 inch diameter will be left for shade and thermo-regulation.

- 5) **Describe terrain (slope, soil type, rocks)**
Uplands, sandy loam type soil with less than 25-30% slope.

- 6) **Please list any special land management status for the project site (e.g. Wilderness, National Park, National Monument). If private land, list landowner.**
Project site is entirely on AZ State Trust Lands.

- 7) **Please provide the following information about access to the proposed site:**
Type of access (mark one): ☒2x4 vehicles ☐4x4 only ☐Foot only**

**If foot access only: Distance in miles: Approx. hiking time:

Does access to this site require crossing private or tribal lands? YES[] NO[X]

Is the site relatively accessible for tree removal equipment? YES[X] NO[]

Please describe any restrictions to public access: